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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/519,167 | 03/21/2006 | Lars Kilaas | 860144.401USPC | 5279 |
| 500 7590 12/23/2008 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104 | | | | |
| EXAMINER DO, PENSEE T | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1641 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 12/23/2008 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,167

Applicant(s)

KILAAS ET AL.

Examiner

Pensee T. Do

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) 22-55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-55 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 9/22/08, 3/21/06

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of group I, claims 1-21 in the reply filed on October 27, 2008 is acknowledged. The traversal is on the ground(s) that all groups share the same technical feature because Wang teaches away from the magnetic particles having remnant. This is not found persuasive because there are other references such as Weitschies et al. (US 6,027,946), Tan or Rohr which teach the magnetic particles of the present invention as explained below.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is confusing. Claim 1 recites in line 3 that "the particles form aggregates in a liquid phase in the absence of the magnetic field" and then recites "the matrix (of the particle) has a surface comprising function groups which promote disaggregation of the particles. This is confusing because "the particle" recited in line 3 already has a matrix (which is defined to have surface functional group that promotes disaggregation). So, it is unclear of how "the particle" recited in line 3 (already comprises a matrix) can aggregate.

Claim 5 is indefinite because "the ferrimagnetic metal oxide" lacks antecedent basis.

Claim 8 is unclear of what is meant by "substantially spherical".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9, 11, 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Weitschies et al. (US 6,027,946).

Weitschies teaches magnetic particle comprising a magnetic material and a matrix/shell comprising functional groups such as aldehyde, thiol. (see col. 7, lines 34-38; col. 5, lines 45-60).

For claims 2-4 and 6, Weitschies teaches the magnetic material comprises ferromagnetic or ferrimagnetic material a magnetic metal oxide such as iron oxides (see col. 7, lines 19-23).

For claim 5, Weitschies teaches the magnetic material is also magnetite. (see example 1).

For claim 7, Weitschies teaches the size of the magnetic particles ranges from 1nm to 1000 nm which is 0.0001 to 100 microns.

For claim 8, Weitschies teaches the particles are spherical by mentioning about the diameter of the particles (see col. 3, line 27).

For claim 9, Weitschies teaches the shell comprises of a polymer. (see col. 7, lines 33-37).

For claim 11, Weitschies teaches using dextran (polymer) coated magnetite particles (see example 1). Dextran is a hydrophilic polymer.

For claims 13-18, Weitschies teaches the matrix comprises a structure specific substance (refers to the affinant in the present invention), which comprises of a nucleic acid, or antibodies (capable of binding to antigen=protein), biotin, oligonucleotide, DNA, RNA (see col. 5, lines 29-40; col. 9, lines 1-10).

For claim 19, Weitschies teaches that the invention is used in bacteriology, toxicology, infectiology and pathology analysis. (see col. 6, lines 8-11). Bacteriology or pathology detects microbial organism and thus requires a microbial protein or cell to bind to the microbial target organism.

Claims 1 -5, 7-18, 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Tan et al. (US 6,548,264).

Tan teaches a silica-coated nanoparticle. Such nanoparticle comprises a magnetic core and a polymeric shell. (see col. 2, lines 9-15). The polymeric shell is functionalized with a functional group such as carboxylate or amine (see col. 3, lines 35-41).

For claims 2-5, Tan teaches the core comprises of magnetic metal oxide such as iron oxide, i.e. magnetite which is ferrimagnetic (see col. 2, lines 23-30).

For claims 7 and 8, Tan teaches the nanoparticles can be spherical and the diameter ranges from 1-1000 nm (see col. 3, lines 13-16).

For claims 9 and 10, Tan teaches the nanoparticle comprises a polymeric shell, particularly silica-based polymer (see col. 2, lines 9-15; col. 5, lines 53-65).

For claims 11, 12 and 21, Tan teaches the same functional groups as claimed in the present invention, i.e. carboxylate, amine (see spec. [0031]) which are hydrophilic or hydrophobic. Thus, the functional groups of Tan can also be hydrophilic or hydrophobic. Therefore, the hydrophobic functional groups can be used to bind to hydrophobic target.

For claims 13-19, Tan teaches that the nanoparticles can comprise ligands such as antibody, nucleic acid (oligonucleotide), biotin or streptavidin, or protein (see col. 2, lines 58-65). The nucleic acid bind to a nucleic acid target. The ligand binds to a cell. (see col. 2, lines 66-67).

Claims 1-19, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Rohr (US 5,445,970).

Rohr teaches magnetic label comprising magnetic core dispersed in a polymeric matrix. (see col. 10, line 1-30, table 1). The magnetic matrix also has functional groups such as aldehydes, carboxylic, epoxide, sulfhydryl, hydroxyl, amino, etc. (see col. 13, lines 42-65).

For claims 2-6, Rohr teaches that the magnetic material comprises of a metal oxide such as iron oxide, and that the magnetic material is ferromagnetic or ferrimagnetic, such as magnetite (see col. 10, lines 1-28).

For claims 7 and 8, Rohr teaches the magnetic particles are spherical and have diameter ranging from 0.01 microns to 1000 microns. (see col. 12, lines 55-65).

For claims 9, 10, Rohr teaches that the magnetic particles has coating comprising of a polymer or a silica-based polymer (see col. 12, lines 43-54; col. 14, lines 33-55).

For claims 11, 12 and 21, since Rohr teaches using the same functional groups as those claimed by the present invention, i.e. carboxylic, amine, hydroxyl, etc., these functional groups can be hydrophilic or hydrophobic and are usable in non-polar or polar liquid. Rohr also teaches detecting microorganism target. (see col. 5, lines 53-54).

For claims 13-19, Rohr teaches the magnetic particles are derivatized with a binding member for binding to a target, i.e. nucleic acid, or cell such as a microorganism. Such binding member comprises an antibody, avidin, biotin, oligonucleotides. (see col. 5, line 15-col. 16, line 23).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weitschies or Tan or Rohr in view of Nelson et al. (US 5,962,641).

Weitschies, Tan and Rohr have been discussed above but fail to teach the target comprises a metal and the affinant comprises a chelator for the metal.

Nelson teaches that it is well known in the art that several different metal chelating ligands have been employed in immobilized metal ion affinity chromatography (IMAC) to purify proteins. (see col. 1, lines 20-25). Nelson also discloses a novel metal chelating complex for purifying recombinant proteins having a polyhistidine tail or tag. (See col. 4, lines 18-22).

It would have been obvious to one of ordinary skills in the art to use appropriate binder for the analytes being detected, i.e. chelator to detect metal as taught by Nelson, since Weitschies, Tan and Rohr all require a binder/structure specific substance on their nanoparticles to detect analytes.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pensee T. Do whose telephone number is 571-272-0819. The examiner can normally be reached on Monday-Friday, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher L. Chin/
Primary Examiner, Art Unit 1641

/Pensee T. Do/
Examiner, Art Unit 1641